

Listing Of The Claims

1. (Cancelled).
2. (Cancelled).
3. (Cancelled).
4. (Cancelled).
5. (Cancelled).
6. (Original) An autothermal reforming module for use in a compact fuel processor, comprising:
 - a module inlet for receiving a feed stream;
 - a module outlet for producing an effluent stream;
 - a fixed bed reactor having a reactor inlet, a reactor outlet, and autothermal reforming catalyst;
 - an inlet spiral passage in fluid communication with the module inlet to the reactor inlet;
 - an outlet spiral passage in fluid communication with the reactor outlet to the module outlet;
 - a flow distribution manifold in fluid communication with the reactor inlet for evenly distributing flow into the reactor; and
 - a flow collection manifold in fluid communication with the reactor for directing hot reactor product to the reactor outlet;wherein the feed stream is introduced to the module inlet, passes through the inlet spiral passage, and is heated by the hot reactor product passing through the outlet spiral passage.
7. (Original) The autothermal reforming module described in claim 6, wherein the autothermal reforming catalyst includes supported catalyst particles.

8. (Original) The autothermal reforming module described in claim 6, wherein the autothermal reforming catalyst includes monoliths.
9. (Original) The autothermal reforming module described in claim 6, wherein the autothermal reforming catalyst includes a partial oxidation catalyst.
10. (Original) The autothermal reforming module described in claim 9, wherein the autothermal reforming catalyst includes a steam reforming catalyst.
11. (Original) The autothermal reforming module described in claim 6, wherein the feed stream is a mixture of air, steam, and hydrocarbon fuel.
12. (New) A module for use in a compact fuel processor, comprising:
 - a module inlet for receiving a feed stream;
 - a module outlet for producing an effluent stream;
 - a fixed bed reactor having a reactor inlet, a reactor outlet, and desulfurization material;
 - an inlet spiral passage in fluid communication with the module inlet to the reactor inlet;
 - an outlet spiral passage in fluid communication with the reactor outlet to the module outlet;
 - a flow distribution manifold in fluid communication with the reactor inlet for evenly distributing flow into the reactor; and
 - a flow collection manifold in fluid communication with the reactor for directing hot reactor product to the reactor outlet;wherein the feed stream is introduced to the module inlet, passes through the inlet spiral passage, and is heated by the hot reactor product passing through the outlet spiral passage.
13. (New) The module of claim 12, wherein the desulfurization material comprises zinc oxide.
14. (New) A module for use in a compact fuel processor, comprising:

a module inlet for receiving a feed stream;
a module outlet for producing an effluent stream;
a fixed bed reactor having a reactor inlet, a reactor outlet, and water gas shift catalyst;
an inlet spiral passage in fluid communication with the module inlet to the reactor inlet;
an outlet spiral passage in fluid communication with the reactor outlet to the module outlet;
a flow distribution manifold in fluid communication with the reactor inlet for evenly distributing flow into the reactor; and
a flow collection manifold in fluid communication with the reactor for directing hot reactor product to the reactor outlet;
wherein the feed stream is introduced to the module inlet, passes through the inlet spiral passage, and is heated by the hot reactor product passing through the outlet spiral passage.

15. (New) The module of claim 14, wherein the water gas shift catalyst comprises a high temperature shift catalyst, a low temperature shift catalyst or a combination of both high temperature and low temperature shift catalysts.
16. (New) A module for use in a compact fuel processor, comprising:
 - a module inlet for receiving a feed stream;
 - a module outlet for producing an effluent stream;
 - a fixed bed reactor having a reactor inlet, a reactor outlet, and preferential oxidation catalyst for converting carbon monoxide to carbon dioxide;
 - an inlet spiral passage in fluid communication with the module inlet to the reactor inlet;
 - an outlet spiral passage in fluid communication with the reactor outlet to the module outlet;
 - a flow distribution manifold in fluid communication with the reactor inlet for evenly distributing flow into the reactor; and

a flow collection manifold in fluid communication with the reactor for directing hot reactor product to the reactor outlet; wherein the feed stream is introduced to the module inlet, passes through the inlet spiral passage, and is heated by the hot reactor product passing through the outlet spiral passage.